

# CS4530 Final Project:

## “Personalized Fake Stack Overflow Web UI

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### Our Feature: Improved Accessibility

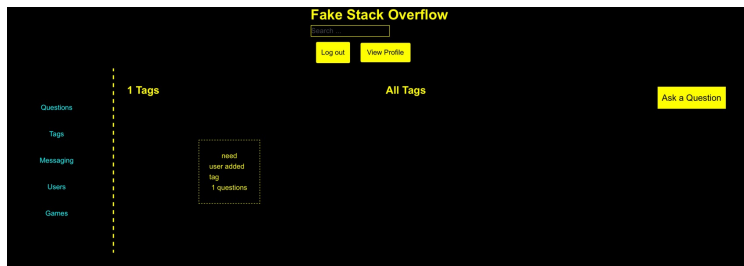
In this project, we enhanced the accessibility of a fake Stack Overflow platform. Our focus is improving accessibility for users with visual impairments, including **screen-reader users**, **low-vision users**, and **colorblind users**.

Currently, Stack Overflow’s user interface lacks sufficient accessibility features, which makes it difficult for these users to interact with the platform effectively. We aim to implement features such as improved ARIA (Accessible Rich Internet Applications) attributes, high color contrast, and introducing a **day/night mode** for user interface customization. We also integrated **Single Sign-On (SSO)** tools for user authentication and storage of personalized preferences.

With these implementations, the fake Stack Overflow platform has become more inclusive, aligning with modern web accessibility standards and allowing more users to contribute and benefit from the platform.

### Demo and Source

Visit our live demo site to see the accessibility improvements in action. The demo showcases the enhancements to the Stack Overflow platform, including accessibility features like screen reader compatibility and customizable color contrast. **Demo Site:** <https://cs4530-s25-419.onrender.com/>



In this screenshot, the Fake Stack Overflow interface features a dark theme with a yellow color scheme. The left sidebar contains blue navigation options like Questions, Tags, and Users. The design emphasizes high contrast for better accessibility. Users can post questions, and others can answer.

### Technology Stack & Design

We built upon the provided existing code for Stack Overflow (creating fake Stack Overflow), utilizing the following tools:

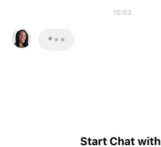
- **Frontend:** Chakra UI for UI components, Material UI for flexibility, React for dynamic rendering.
- **Backend:** Firebase for authentication, and persistent user preferences.
- **Authentication:** Secure login using SSO services (Firebase) and 2FA (two-factor authentication).
- **Testing:** Automated testing for accessibility and functionality to ensure the improvements are practical across all platforms.

Essentially, we are using React and Chakra UI to implement accessibility improvements like adjustable high-contrast themes and personalized settings. Thanks to the storage of user-profiles and preferences, the changes will persist across sessions.

### Future Development & Testing

In the next development phase, we plan to further enhance the accessibility and functionality of the platform based on actual user feedback and new features. Key areas of improvement include:

- **Refine Accessibility:** Add color options for colorblind users and improve keyboard navigation.
- **Enhance Customization:** Explore additional customization features like text-to-speech for UI elements
- **Expand SSO Integration:** Support more authentication and enhance security with multi-factor authentication (MFA).
- **User Testing and Feedback:** Conduct usability testing with actual users to gather feedback and identify areas for further accessibility improvements.
- **Live Chat Integration:** Introduce a live chat feature to allow real-time user communication, enhancing collaboration and engagement.
- **Performance Optimizations:** Improve load times and responsiveness for a better device user experience.



Like this screenshot, we want to introduce a live chat feature to allow real-time user communication, enhancing collaboration and interactions.